

*The Book of Gem Cuts*



## INTRODUCTION

Book of Gem Cuts, Volume II

TWENTY-FIVE years ago the first BOOK OF GEM CUTS blazed the way for amateur lapidaries all over the country to explore the previously, and almost unknown, field of faceting. A certain amount of information, it is true, had been accruing over a period of years, due largely to the efforts of a small group of ardent amateurs. These were capable people, who with little to go on but their own ingenuity and perseverance, found the facts behind the mystery, and developed techniques which rival that of professional cutters. But the great majority of would-be faceters were still very much in the dark.

The first BOOK OF GEM CUTS changed the picture a good deal. "Secret" procedures, tricks of the trade and much specialized information was made available for the first time to the growing number of ambitious beginners.

Now we are beginning to grow up a little. We are looking around for harder problems and keener challenges. In this book you will find them. This time the accent is not so much on procedures, although they are as thoroughly gone into as before, but now we also explore the unusual in design. Very beautiful cuts will be found here, patterns that are seldom seen, and then only in the most expensive custom work. Maybe you thought you never would be able to cut gems in the shape of hearts, marquises and pendeloques. Here you will find that you can. And that isn't all. You will notice, as you go along, a growing freedom in the way you handle your gems; and as you realize the endless variety of shapes possible, your imagination will be stimulated and you will begin to work out your own designs.

When that happens you will have made a full circle back to all that was finest in the jamb-peg cutting of the past, and will combine technical excellence with artistic freedom. No amateur can ask for more.

We take great pleasure in presenting Volume 2 of *The Book of Gem Cuts*



MDR Manufacturing, Inc.

*The home of Master faceting instruments*

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Values are calculated from the  
Bullock's Index Values

# BRILLIANT BRIOLLETTE CUT

## HORIZONTAL SPLITS

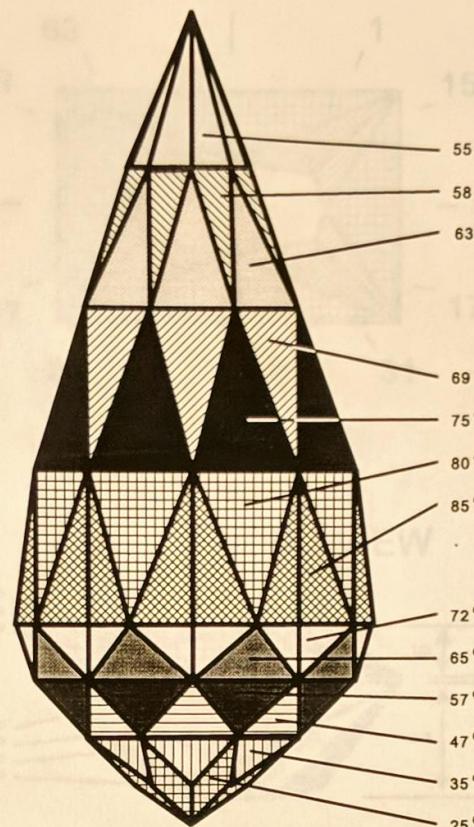
No. 1

### SIDE VIEW

CUT  
↓

- 7 1
- 6 2
- 5 3
- 4 4
- 3 5
- 2 6
- 1 7

↑ POLISH



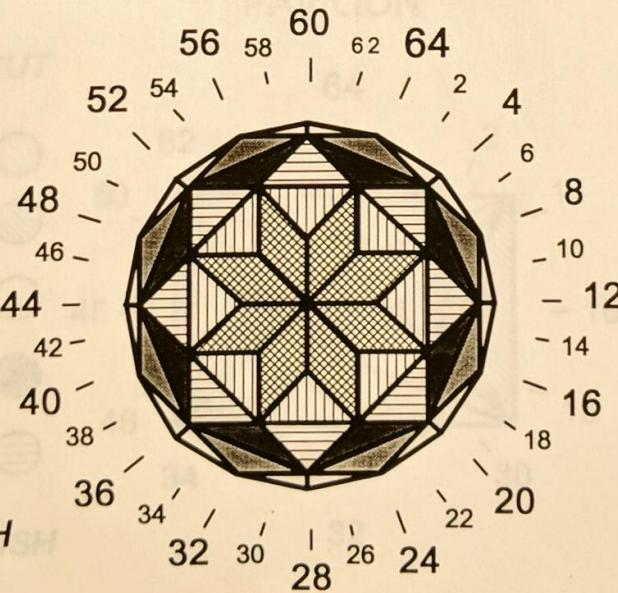
CUT  
↓

### END VIEW

↑ POLISH

- 5 1
- 6 2
- 4 3
- 3 4
- 2 5
- 1 6

↑ POLISH



### 64 Index - Angles for Quartz

NOTE: Top of stone should be cut first.

#### ORDER OF CUTTING - Top

GRIND 1st: Eight facets at  $80^\circ$  indexing 64-8-16-24-32-40-48-56.

GRIND 2nd: Sixteen facets at  $85^\circ$  indexing 2-6-10-14-18-22-26-30-34-38-42-46-50-54-58-62.

GRIND 3rd: Eight facets at  $75^\circ$  indexing 64-8-16-etc.

GRIND 4th: Eight facets at  $69^\circ$  indexing 4-12-20-28-36-44-52-60.

GRIND 5th: Eight facets at  $63^\circ$  indexing 4-12-20-28-36-44-52-60.

GRIND 6th: Eight facets at  $58^\circ$  indexing 64-8-16-etc.

GRIND 7th: Eight facets at  $55^\circ$  indexing 64-8-16-etc.

#### ORDER OF POLISHING - Top

See polishing order on left, using same angles and indices as with grinding.

OPTIONAL: Girdle facets may be ground first, or last, at  $90^\circ$  using Indices of 2-6-10-14-18-22-26-30-34-38-42-46-50-54-58-62. Polishing should be completed at this setting.

#### ORDER OF CUTTING - Bottom

GRIND 1st: Eight facets at  $65^\circ$  indexing 64-8-16-24-32-40-48-56.

GRIND 2nd: Sixteen facets at  $72^\circ$  indexing 2-6-10-14-18-22-26-30-34-38-42-46-50-54-58-62.

GRIND 3rd: Eight facets at  $57^\circ$  indexing 64-8-16-etc.

GRIND 4th: Eight facets at  $47^\circ$  indexing 4-12-20-28-36-44-52-60.

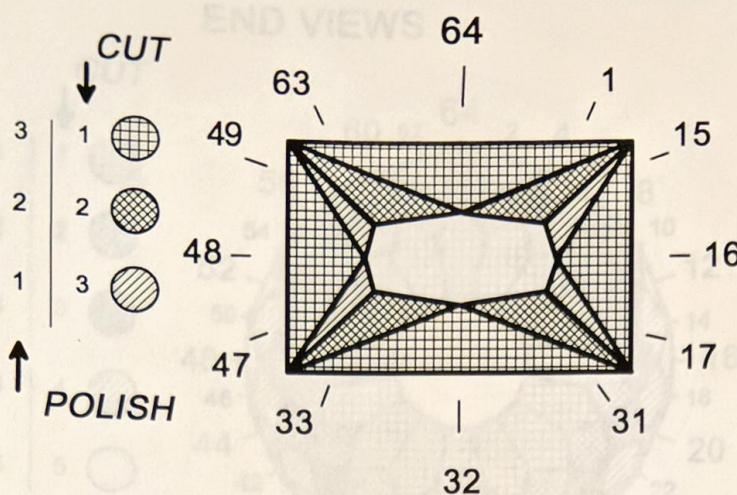
GRIND 5th: Eight facets at  $35^\circ$  indexing 4-12-20-28-36-44-52-60.

GRIND 6th: Eight facets at  $25^\circ$  indexing 64-8-16-etc.

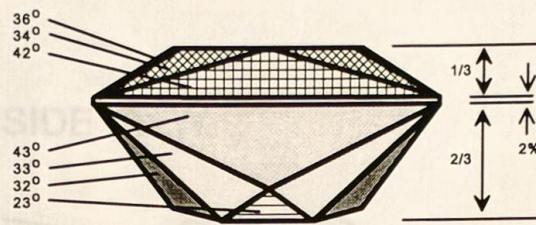
#### ORDER OF POLISHING - Bottom

See polishing order on left, using same angles and indices as with grinding.

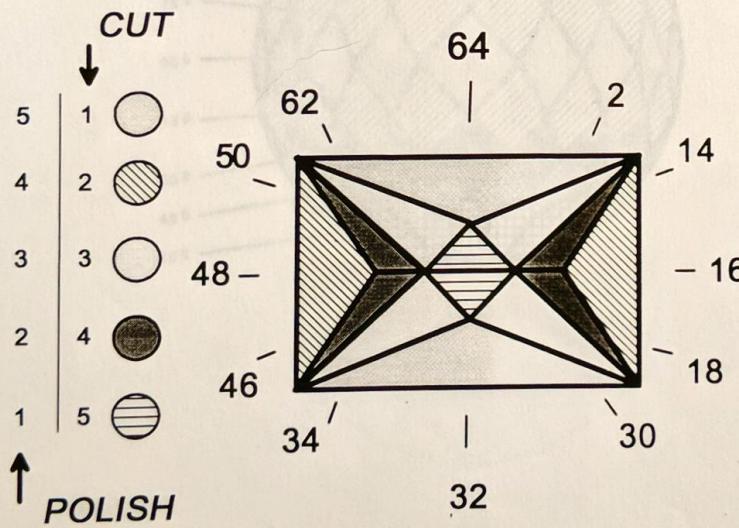
CROWN



## SIDE VIEW



## PAVILION



## 64 Index - Angles for Quartz

#### ORDER OF CUTTING - Crown

GRIND 1st: Four facets at 42° indexing  
64-16-32-48.

GRIND 2nd: Four facets at  $34^\circ$  indexing  
63-1-31-33.

GRIND 3rd: Four facets at 36° indexing  
15-17-47-49.

#### ORDER OF POLISHING - Crown

See polishing order on left, using same angles and indices as with grinding.

#### ORDER OF CUTTING - Pavilion

GRIND 1st: Two facets at 43° indexing 64-32.

GRIND 2nd: Two facets at  $39^{\circ}$  indexing 16-48.

GRIND 3rd: Four facets at 33° indexing  
62-2-30-34.

GRIND 4th: Four facets at  $32^\circ$  indexing  
14-18-46-50.

GRIND 5th: Two facets at 23° indexing 64-32.

## ORDER OF POLISHING - Pavilion

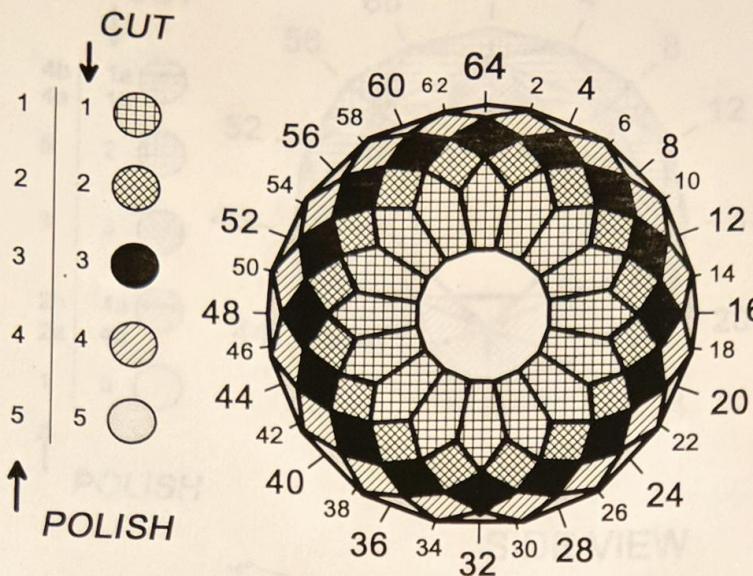
See polishing order on left, using same angles and indices as with grinding.

Cut and polish table in  $45^{\circ}$  angle down approximately 40% of the width of the stone at the girdle.

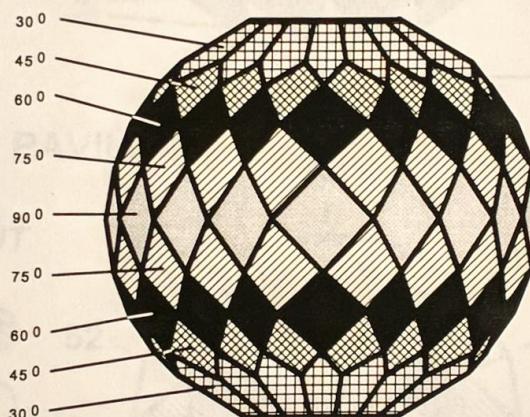
# BRILLIANT BEAD CUT

No. 3

## END VIEWS



## SIDE VIEW



64 Index - Angles for Quartz

ORDER OF CUTTING - Glass

### 64 Index - Angles for Quartz

#### ORDER OF CUTTING - Both Ends

Cut and polish "tables" in  $45^\circ$  angle dop.

GRIND 1ST: Sixteen facets at  $30^\circ$  indexing  
64-4-8-12-16-20-24-28-  
32-36-40-44-48-52-56-60.

GRIND 2nd: Sixteen facets at  $45^\circ$  indexing  
2-6-10-14-18-22-26-30-  
34-38-42-46-50-54-58-62.

GRIND 3rd: Sixteen facets at  $60^\circ$  indexing  
64-4-8-etc.

GRIND 4th: Sixteen facets at  $75^\circ$  indexing  
2-6-10-etc..

GRIND 5th: Sixteen facets at  $90^\circ$  indexing  
12-36-60-84. The fifth grind is common to  
both ends, and is cut on one only.

#### ORDER OF POLISHING - Both Ends

See polishing order on left, using same  
angles and indices as were used in grinding.  
After completing one end of the bead,  
reverse on dop and repeat from beginning,  
on the other end, omitting the 5th grind.

#### GRINDING

(a) Eight facets at  $30^\circ$  indexing  
64-8-16-20-32-16-48-36

(b) Eight facets at  $45^\circ$  indexing  
64-2-10-etc.

GRIND 2nd: Sixteen facets at  $75^\circ$  indexing  
2-2-3-etc.

GRIND 3rd: Sixteen facets at  $60^\circ$  indexing  
62-6-etc.

GRIND 4th: Eight facets at  $42^\circ$  indexing  
64-8-16-24-32-60-48-56.

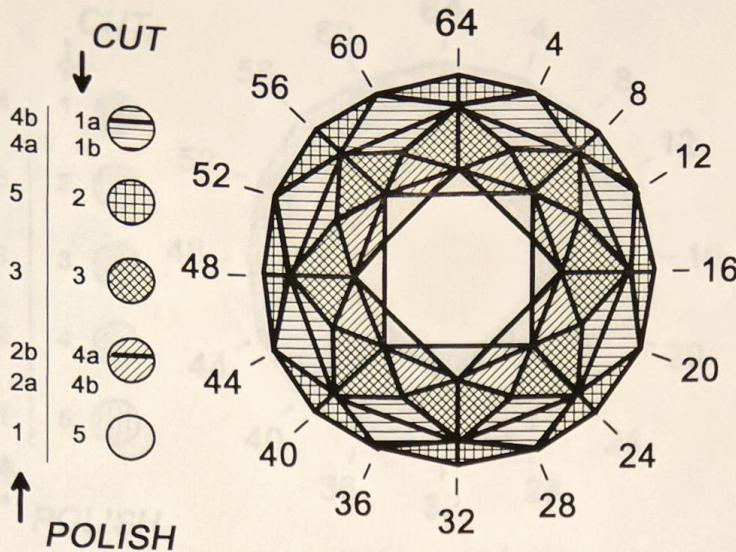
#### ORDER OF POLISHING - Pavilion

See polishing order on left, using same  
angles and indices as with grinding

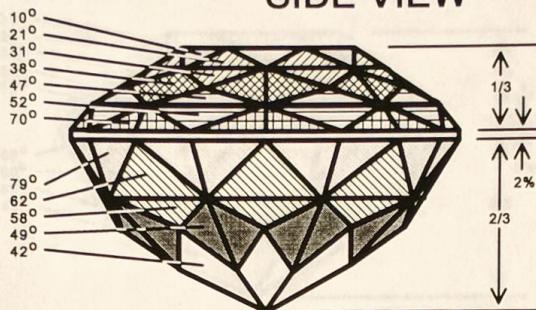
# DOUBLE DIAMOND CUT

## HORIZONTAL SPLITS

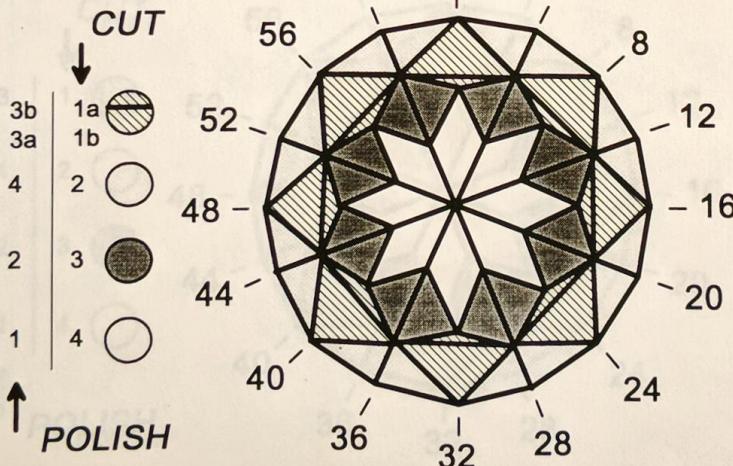
### CROWN



### SIDE VIEW



### PAVILION



### 64 Index - Angles for Quartz

#### ORDER OF CUTTING - Crown

Cut and polish table in  $45^\circ$  angle dop approximately 35% of the width of the stone at the girdle.

#### GRIND 1st:

(b): Eight facets at  $52^\circ$  indexing 4-12-20-28-36-44-52-60.

(a): Eight facets at  $47^\circ$  indexing 4-12-20-etc.

GRIND 2nd: Sixteen facets at  $70^\circ$  indexing 62-2-6-10-14-18-22-26-30-34-38-42-46-50-54-58.

GRIND 3rd: Sixteen facets at  $38^\circ$  indexing 62-2-6-etc.

#### GRIND 4th:

(b): Eight facets at  $31^\circ$  indexing 4-12-20-etc.

(a): Eight facets at  $21^\circ$  indexing 4-12-20-etc.

GRIND 5th: Eight facets at  $10^\circ$  indexing 64-8-16-24-32-40-48-56.

#### ORDER OF POLISHING - Crown

See polishing order on left, using same angles and indices as with grinding.

#### ORDER OF CUTTING - Pavilion

#### GRIND 1st:

(b): Eight facets at  $62^\circ$  indexing 64-8-16-24-32-40-48-56.

(a): Eight facets at  $58^\circ$  indexing 64-8-16-etc.

GRIND 2nd: Sixteen facets at  $79^\circ$  indexing 62-2-6-etc.

GRIND 3rd: Sixteen facets at  $49^\circ$  indexing 62-2-6-etc.

GRIND 4th: Eight facets at  $42^\circ$  indexing 64-8-16-24-32-40-48-56.

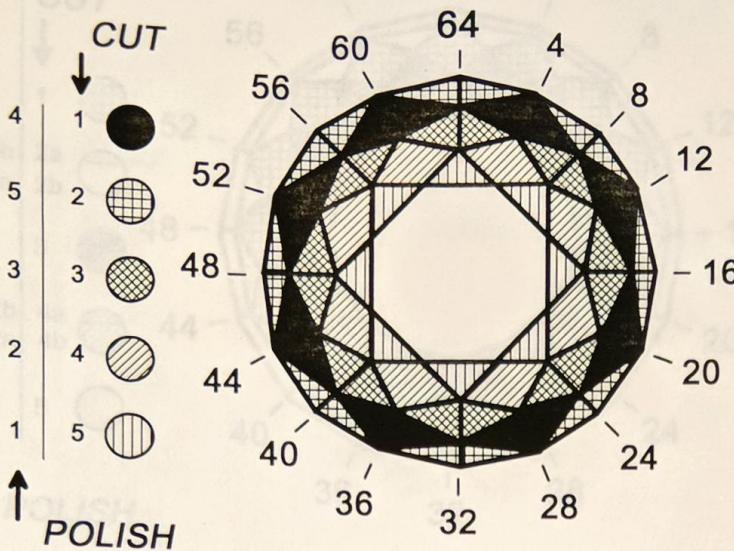
#### ORDER OF POLISHING - Pavilion

See polishing order on left, using same angles and indices as with grinding.

# DOUBLE DIAMOND CUT

No. 5

## CROWN



64 Index - Angles for Quartz

### ORDER OF CUTTING - Crown

Cut and polish table in  $45^\circ$  angle dop approximately 40% of the width of the stone at the girdle.

GRIND 1st: Eight facets at  $52^\circ$  indexing 4-12-20-28-36-44-52-60

GRIND 2nd: Sixteen facets at  $70^\circ$  indexing 62-2-6-10-14-18-22-26-30-34-38-42-46-50-54-58.

GRIND 3rd: Sixteen facets at  $36^\circ$  indexing 62-2-6-etc.

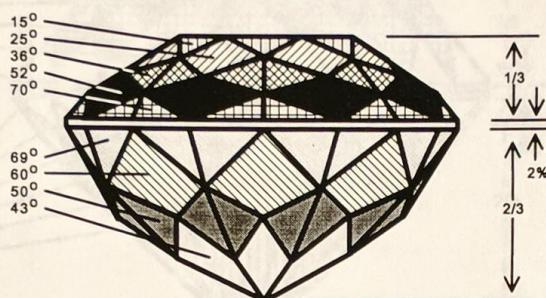
GRIND 4th: Eight facets at  $25^\circ$  indexing 4-12-20-etc.

GRIND 5th: Eight facets at  $15^\circ$  indexing 64-8-16-24-32-40-48-56.

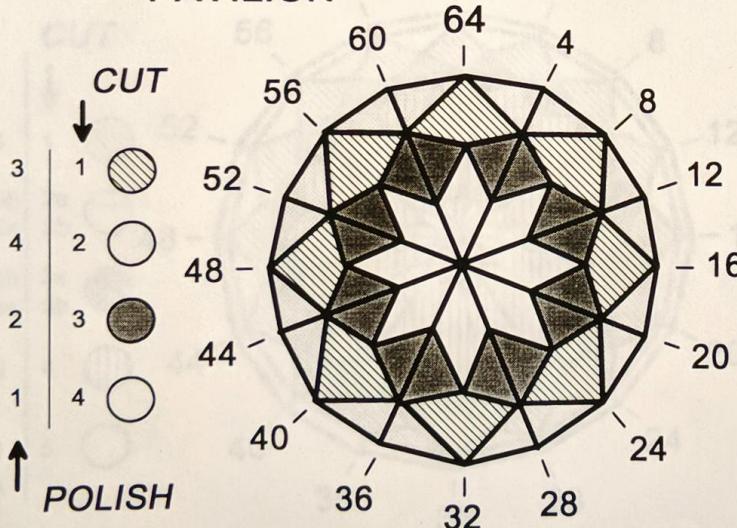
### ORDER OF POLISHING - Crown

See polishing order on left, using same angles and indices as with grinding.

## SIDE VIEW



## PAVILION

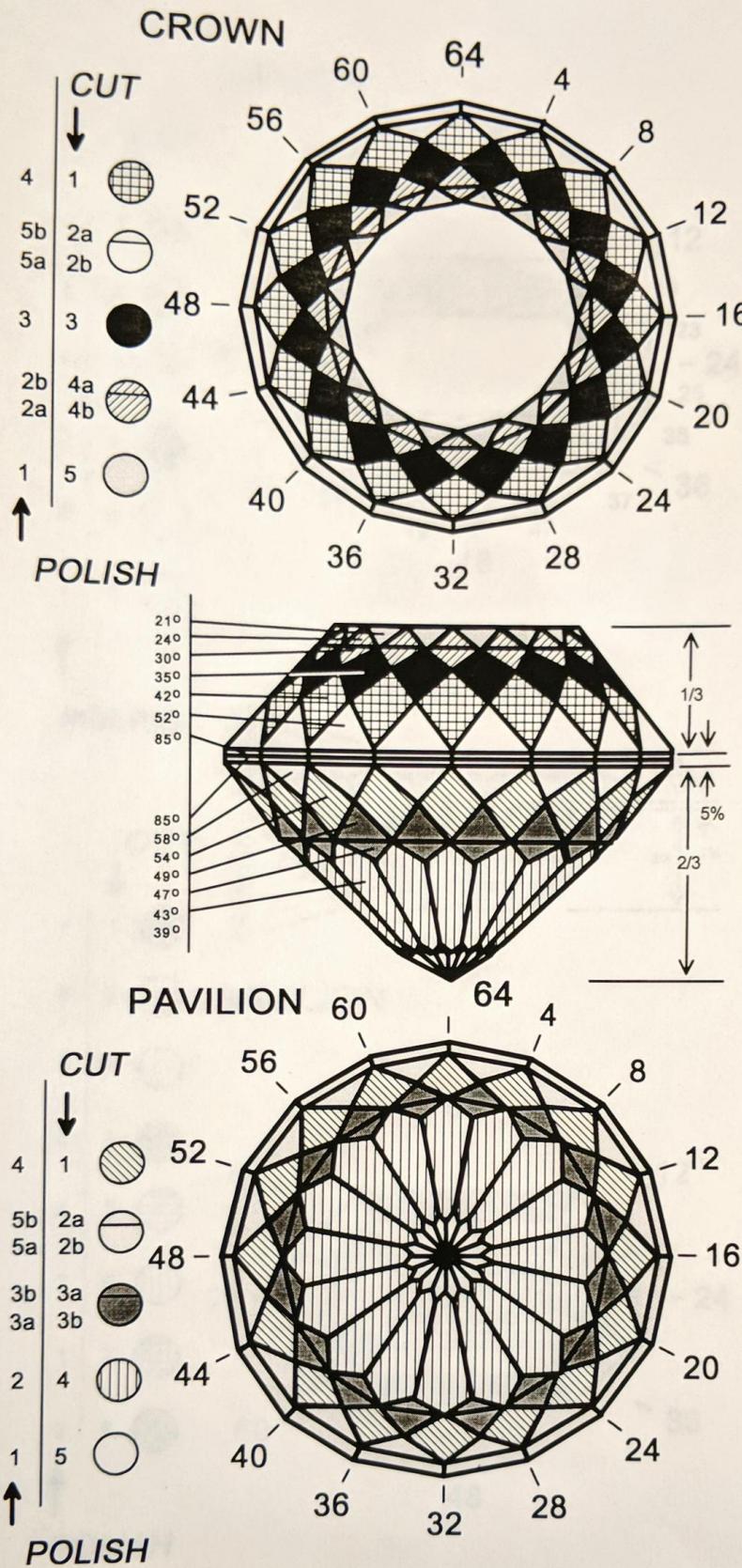


### ORDER OF POLISHING - Pavilion

See polishing order on left, using same angles and indices as with grinding.

# PORTUGUESE CUT

No. 6



64 Index - Angles for Quartz

ORDER OF CUTTING - Crown

Cut and polish table in  $45^\circ$  dop holder.  
Table to be approximately 40% of girdle width after crown faceted.

GRIND 1st: Sixteen facets at  $42^\circ$  indexing  
64-4-8-12-16-20-24-28-  
32-36-40-44-48-52-56-60.

GRIND 2nd:

(b): Sixteen facets at  $52^\circ$  indexing  
62-2-6-10-14-18-22-26-  
30-34-38-42-46-50-54-58

(a): Sixteen facets at  $85^\circ$  indexing  
62-2-6-etc.

GRIND 3rd: Sixteen facets at  $35^\circ$  indexing  
62-2-6-etc.

GRIND 4th:

(b): Sixteen facets at  $30^\circ$  indexing  
64-4-8-etc.

(a): Sixteen facets at  $24^\circ$  indexing  
64-4-8-etc.

GRIND 5th: Sixteen facets at  $21^\circ$  indexing  
62-2-6-etc.

ORDER OF POLISHING - Crown

See polishing order on left, using same angles and indicies as with grinding.

ORDER OF CUTTING - Pavilion

GRIND 1st: Sixteen facets at  $54^\circ$  indexing  
64-4-8-etc.

GRIND 2nd:

(b): Sixteen facets at  $58^\circ$  indexing  
62-2-6-etc.

(a): Sixteen facets at  $85^\circ$  indexing  
62-2-6-etc.

GRIND 3rd:

(b): Sixteen facets at  $49^\circ$  indexing  
62-2-6-etc.

(a): Sixteen facets at  $47^\circ$  indexing  
62-2-6-etc.

GRIND 4th: Sixteen facets at  $43^\circ$  indexing  
64-4-8-etc.

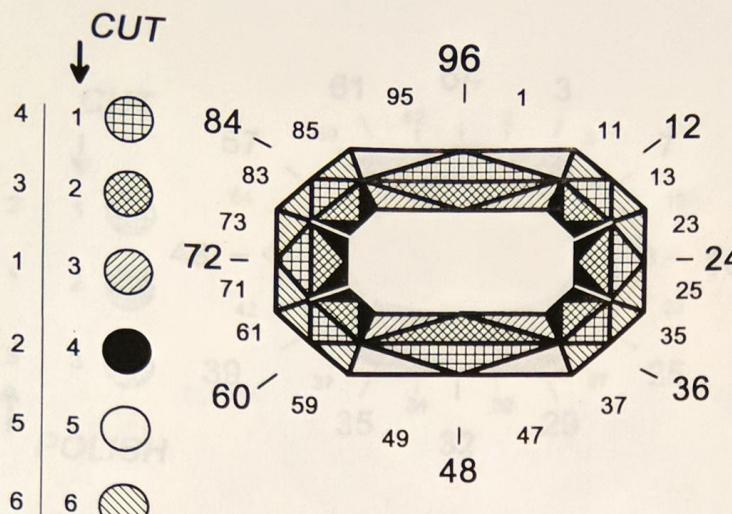
GRIND 5th: Sixteen facets at  $39^\circ$  indexing  
62-2-6-etc.

ORDER OF POLISHING - Pavilion

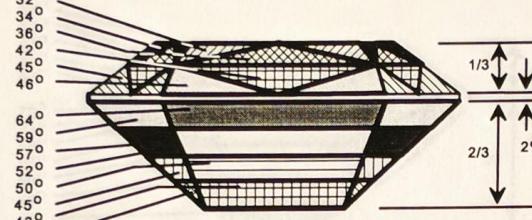
See polishing order on left, using same angles and indicies as with grinding.

## MIXED CUT

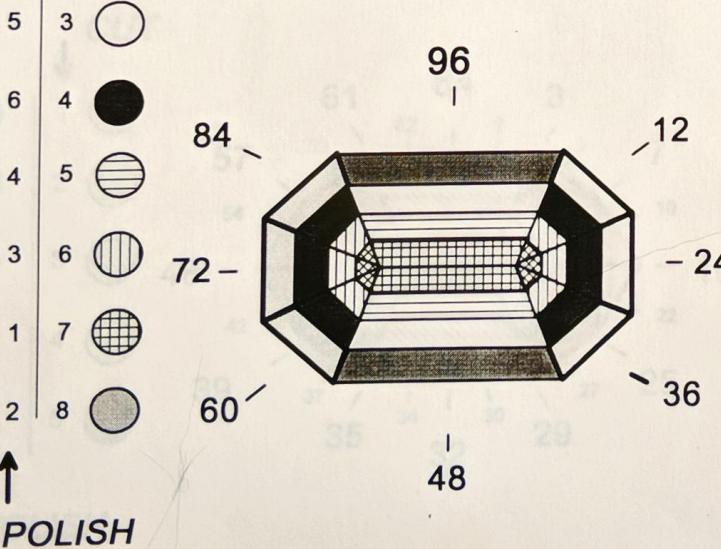
## CROWN



## SIDE VIEW



## PAVILION



## 96 Index - Angles for Quartz

## ORDER OF CUTTING - Crown

Cut and polish table in 45° dop holder. Table to be approximately 45% of girdel width after crown faceted.

GRIND 1st: Eight facets at 42° indexing 96-48, 24-72, 12-84, 36-60.

GRIND 2nd: Eight facets at 36° indexing 96-48, 24-72, 12-84, 36-60.

GRIND 3rd: Four facets at 32° indexing 95-1, 47-49.

GRIND 4th: Twelve facets at 34° indexing 35-37, 11-13, 83-85, 59-61, 71-73, 23-25.

GRIND 5th: Four facets at 46° indexing 95-1, 47-49.

GRIND 6th: Twelve facets at 45° indexing 35-37, 11-13, 83-85, 59-61, 71-73, 23-25.

## ORDER OF POLISHING - Crown

See polishing order on left, using same angles and indices as with grinding.

## ORDER OF CUTTING - Pavilion

GRIND 1st: Two facets at 64° indexing 96-48.

GRIND 2nd: Six facets at 59° indexing 12-24-36, 60-72-84.

GRIND 3rd: Two facets at 57° indexing 96-48.

GRIND 4th: Six facets at 52° indexing 12-24-36, 60-72-84.

GRIND 5th: Two facets at 50° indexing 96-48.

GRIND 6th: Six facets at 45° indexing 12-24-36, 60-72-84.

GRIND 7th: Two facets at 43° indexing 96-48.

GRIND 6th: Six facets at 38° indexing 12-24-36, 60-72-84.

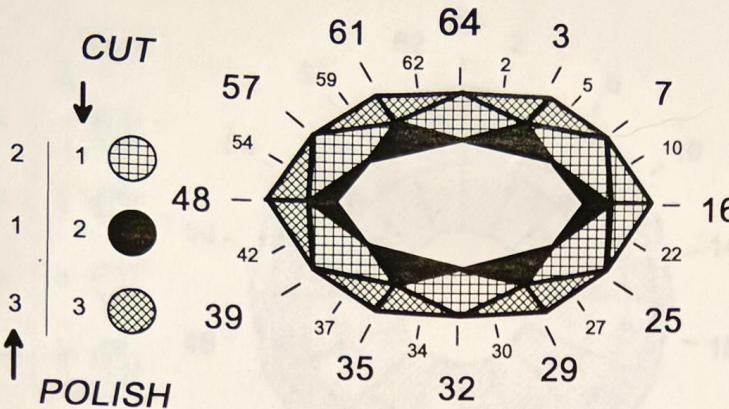
## ORDER OF POLISHING - Pavilion

See polishing order on left, using same angles and indices as with grinding.

# PSEUDO MARQUIS CUT

No. 8

## CROWN



### 64 Index - Angles for Quartz

#### ORDER OF CUTTING - Crown

NOTE: After preforming, rough in girdle at  $90^\circ$ , using indices 64-7-25-32-39-57. (Don't carry this step too far.)

Cut and polish table in  $45^\circ$  dop holder. Table to be approximately 40% of girdle width after crown faceted.

GRIND 1st: Six facets at  $42^\circ$  indexing 64-7-25-32-39-57.

GRIND 2nd: Eight facets at  $27^\circ$  indexing 3-61, 29-35, 10-22, 42-54.

GRIND 3rd:

Four facets at  $58^\circ$  indexing 2-62, 30-34.

Four facets at  $57^\circ$  indexing 5-59, 27-37.

Four facets at  $54^\circ$  indexing 10-22, 42-54.

#### ORDER OF POLISHING - Crown

See polishing order on left, using same angles and indices as with grinding.

#### ORDER OF CUTTING - Pavilion

GRIND 1st: Six facets at  $56^\circ$  indexing 64-7-25-32-39-57.

GRIND 2nd:

Four facets at  $72^\circ$  indexing 2-62, 30-34.

Four facets at  $71^\circ$  indexing 5-59, 27-37.

Four facets at  $68^\circ$  indexing 10-22, 42-54.

GRIND 3rd: Six facets at  $50^\circ$  indexing 64-7-25-32-39-57.

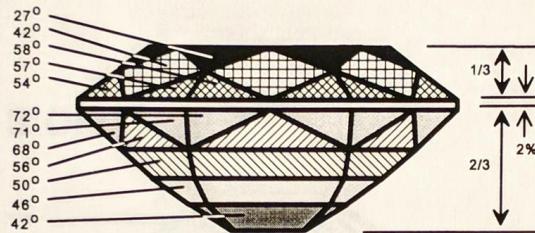
GRIND 4th: Six facets at  $46^\circ$  indexing 64-7-25-32-39-57.

GRIND 5th: Six facets at  $42^\circ$  indexing 64-7-25-32-39-57.

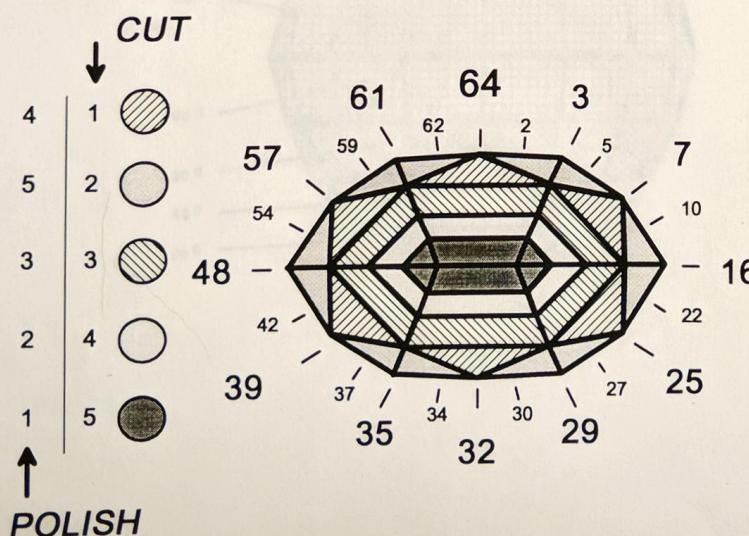
#### ORDER OF POLISHING - Pavilion

See polishing order on left, using same angles and indices as with grinding.

## SIDE VIEW



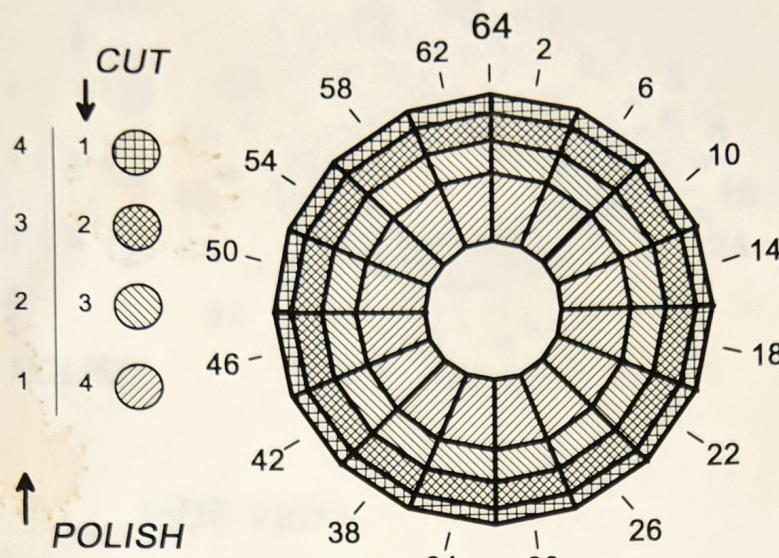
## PAVILION



# STEP CUT BEAD

No. 9

## END VIEWS



64 Index - Angles for Quartz

ORDER OF CUTTING - Both Ends

Cut and polish "tables" in  $45^\circ$  angle dop.

GRIND 1st: Sixteen facets at  $80^\circ$  indexing 2-6-10-14-18-22-26-30.

34-38-42-46-50-54-58-62.

GRIND 2nd: Sixteen facets at  $60^\circ$  indexing 2-6-10-etc.

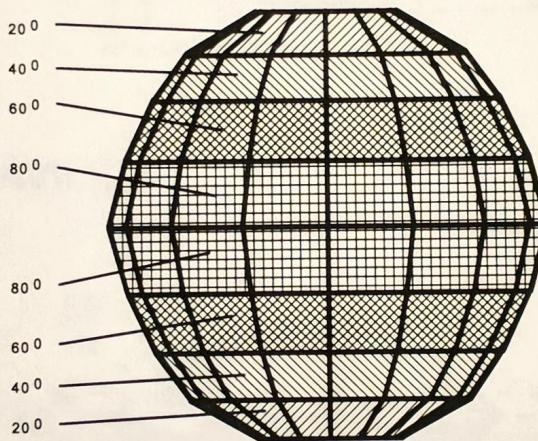
GRIND 3rd: Sixteen facets at  $40^\circ$  indexing ~~2-6-10-etc.~~

GRIND 4th: Sixteen facets at  $20^\circ$  indexing 2-6-10-etc..

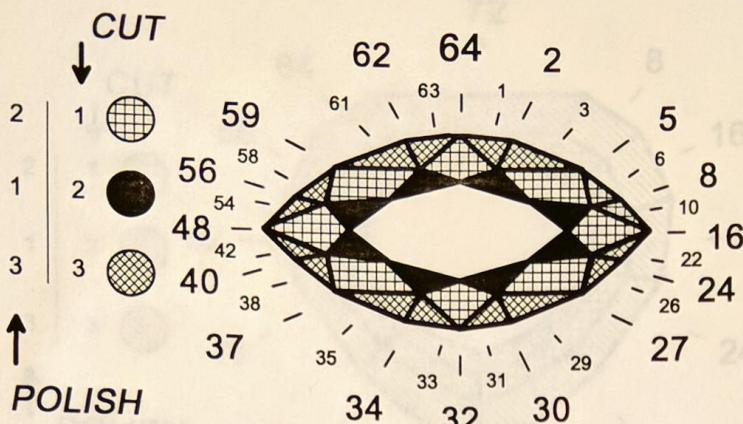
ORDER OF POLISHING - Both Ends

See polishing order on left, using same angles and indices as were used in grinding. After completing one end of the bead, reverse on dop and repeat from beginning, on the other end.

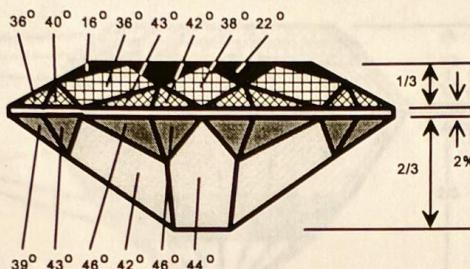
## SIDE VIEW



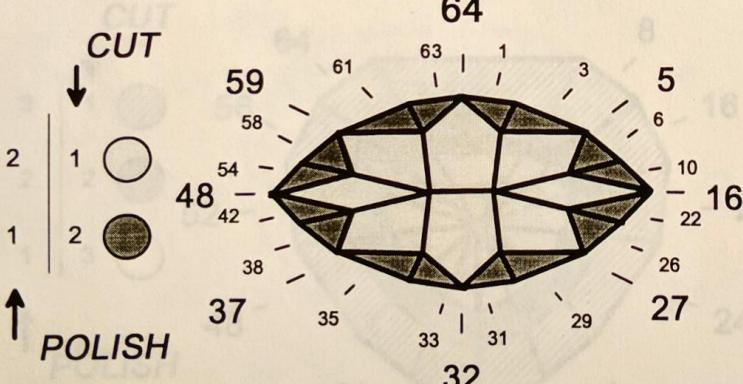
## CROWN



## SIDE VIEW



## PAVILION



## 64 Index - Angles for Quartz

### ORDER OF CUTTING - Crown

NOTE: Stone should be twice as long as it is wide. In performing stone follow proportions of drawing as closely as possible, as deviations necessitate changes in angles. This is particularly true at the girdle facets. Modify angles to maintain level girdle line if necessary.

Cut and polish table in  $45^\circ$  dop holder. Table to be approximately 40% of girdle width after crown faceted.

#### GRIND 1st:

- Two facets at  $38^\circ$  indexing 64-32.
- Four facets at  $36^\circ$  indexing 37-59, 5-27.
- Two facets at  $27^\circ$  indexing 16-48.

#### GRIND 2nd:

- Four facets at  $22^\circ$  indexing 2-62, 30-34.
- Four facets at  $16^\circ$  indexing 40-56, 8-24.

#### GRIND 3rd:

- Four facets at  $42^\circ$  indexing 1-63, 31-33.
- Four facets at  $43^\circ$  indexing 3-61, 29-35.
- Four facets at  $40^\circ$  indexing 6-58, 26-38.
- Four facets at  $36^\circ$  indexing 42-54, 10-22.

### ORDER OF POLISHING - Crown

See polishing order on left, using same angles and indices as with grinding.

### ORDER OF CUTTING - Pavilion

SUGGESTION: Use extreme care aligning pavilion and crown facets. Suggest cutting one set of girdle facets at index 1-61 at approximately  $50^\circ$  first. When centered, the resulting line will point directly to tip of crown main cut at index 64.

#### GRIND 1st:

- Two facets at  $44^\circ$  indexing 64-32.
- Four facets at  $42^\circ$  indexing 37-59, 5-27.
- Two facets at  $31^\circ$  indexing 16-48.

#### GRIND 2nd:

- Eight facets at  $46^\circ$  indexing 1-63, 31-33, 3-61, 29-35.
- Four facets at  $43^\circ$  indexing 6-58, 26-38.
- Four facets at  $39^\circ$  indexing 42-54, 10-22.

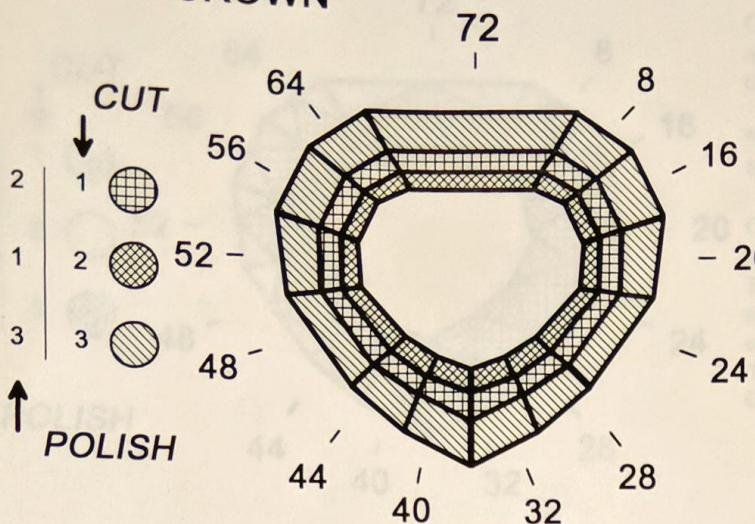
### ORDER OF POLISHING - Pavilion

See polishing order on left, using same angles and indices as with grinding.

# STEP CUT HEART

No. 11

## CROWN



72 Index - Angles for Quartz

### ORDER OF CUTTING - Crown

Cut and polish table in  $45^\circ$  dop holder. Table to be approximately 60% of girdle width after crown is faceted.

- 20

- 24

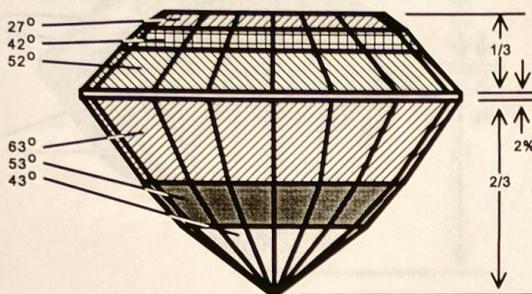
**NOTE:** Each pair must be c width at the table or gem will not be symmetrical.

GRIND 1st: Thirteen facets at  $42^\circ$  indexing 72, 8-64, 16-56, 20-52, 24-48, 28-44, 32-40.

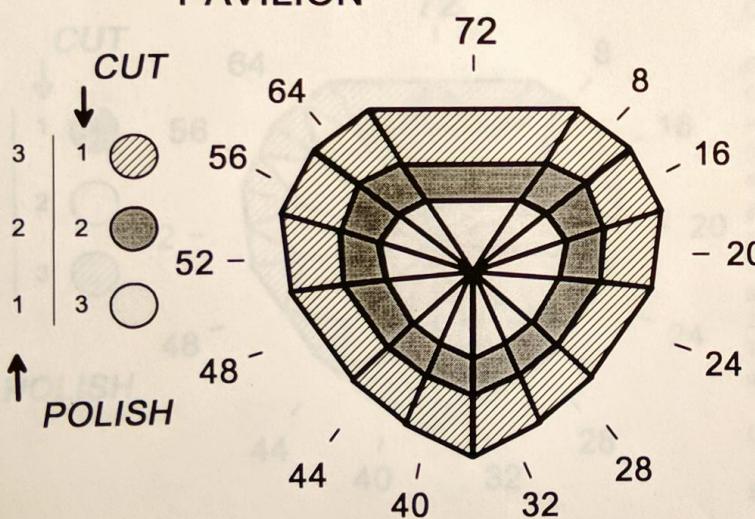
GRIND 2nd: Thirteen facets at  $27^\circ$  indexing 72, 8-64, 16-56, 20-52, 24-48, 28-44, 32-40.

GRIND 3rd: Thirteen facets at  $52^\circ$  indexing 72, 8-64, 16-56, 20-52, 24-48, 28-44, 32-40.

## SIDE VIEW



## PAVILION



### ORDER OF POLISHING - Crown

See polishing order on left, using same angles and indices as with grinding.

### ORDER OF CUTTING - Pavilion

GRIND 1st: Thirteen facets at  $63^\circ$  indexing 72, 8-64, 16-56, 20-52, 24-48, 28-44, 32-40.

GRIND 2nd: Thirteen facets at  $53^\circ$  indexing 72, 8-64, 16-56, 20-52, 24-48, 28-44, 32-40.

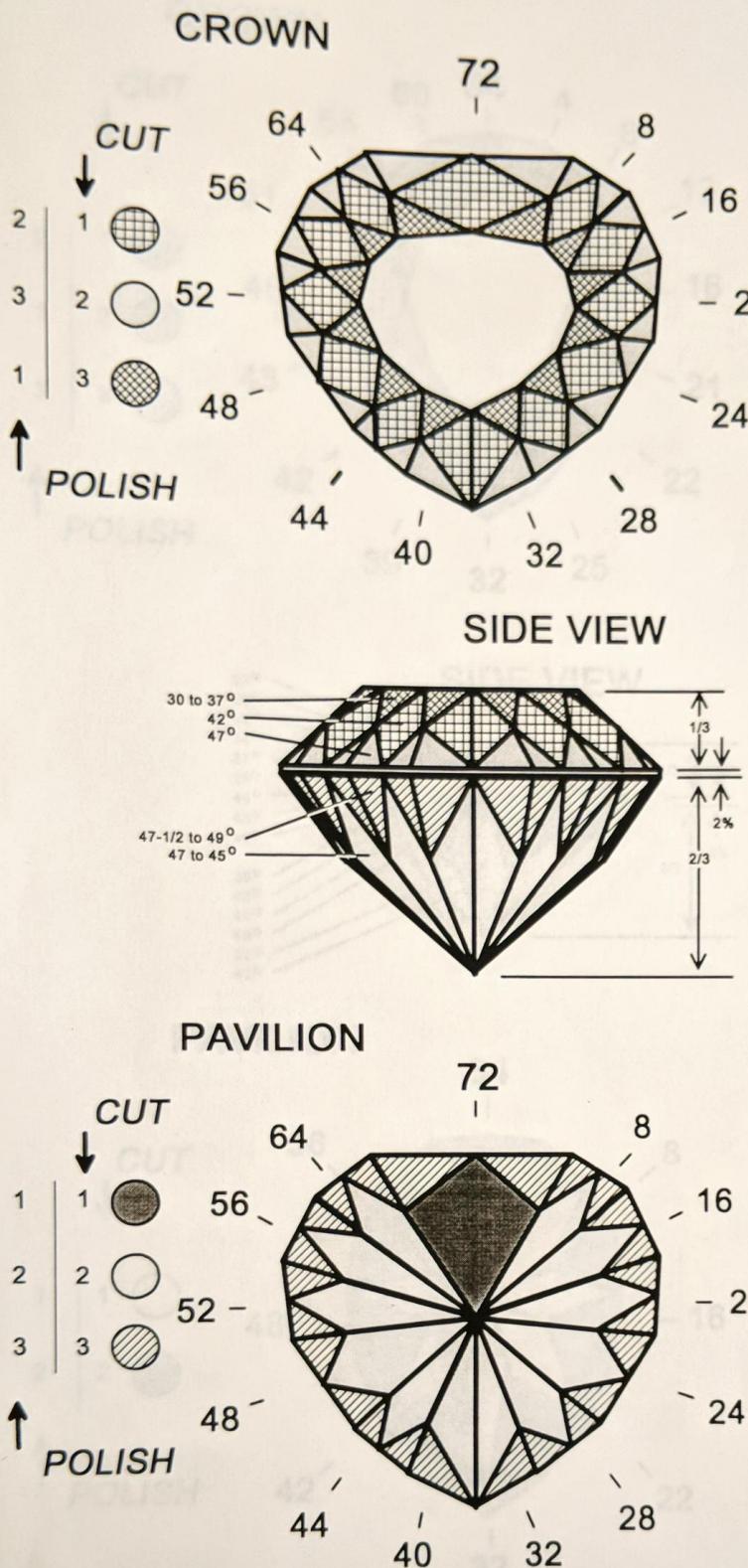
GRIND 3rd: Thirteen facets at  $43^\circ$  indexing 72, 8-64, 16-56, 20-52, 24-48, 28-44, 32-40.

### ORDER OF POLISHING - Pavilion

See polishing order on left, using same angles and indices as with grinding.

# BRILLIANT CUT HEART

No. 12



## 72 Index - Angles for Quartz

### ORDER OF CUTTING - Crown

Cut and polish table in  $45^\circ$  angle down approximately 60% of the width of the stone at the girdle.

NOTE: Each pair must be cut to same width at the table or gem will not be symmetrical.

GRIND 1st: Thirteen facets (mains) at  $42^\circ$  indexing 72, 8-64, 16-56, 20-52, 24-48, 28-44, 32-40. After grinding mains, check symmetry of stone. Adjust shape by grinding girdle down until each pair of opposite mains is the same width at the table.

#### GRIND 2nd:

- Two facets at  $37^\circ$  indexing 1-71.
- Two facets at  $36^\circ$  indexing 12-60.
- Two facets at  $35^\circ$  indexing 18-54.
- Two facets at  $33^\circ$  indexing 22-50.
- Two facets at  $32^\circ$  indexing 26-46.
- Two facets at  $30^\circ$  indexing 30-42.

#### GRIND 3rd:

- Two facets at  $47-1/2^\circ$  indexing 1-71.
- Two facets at  $47^\circ$  indexing 6-66.
- Four facets at  $46-1/2^\circ$  indexing 10-62, 14-58.
- Four facets at  $46^\circ$  indexing 17-55, 19-53.
- Eight facets at  $45-1/2^\circ$  indexing 21-51, 23-49, 25-47, 27-45.
- Two facets at  $45^\circ$  indexing 29-43.
- Two facets at  $44-1/2^\circ$  indexing 31-41.

### ORDER OF POLISHING - Crown

See polishing order on left.

### ORDER OF CUTTING - Pavilion

GRIND 1st: One facet at  $49^\circ$  indexing 72.

GRIND 2nd: Two facets indexing 32-40 at angle which brings them to point with 72 index facet ( $47^\circ$  to  $45^\circ$ ). All remaining facets at index pairs of 8-64, 16-56, 20-52, 24-48 and 28-44 are ground so they meet at culet, leaving an even girdle width.

GRIND 3rd: Twenty-four facets at  $47-1/2^\circ$  to  $49^\circ$  indexing 1-71, 6-66, 10-62, 14-58, 17-55, 19-53, 21-51, 23-49, 25-47, 27-45, 29-43 and 31-41. The girdle facets should be about  $2/3$  length of the main facets.

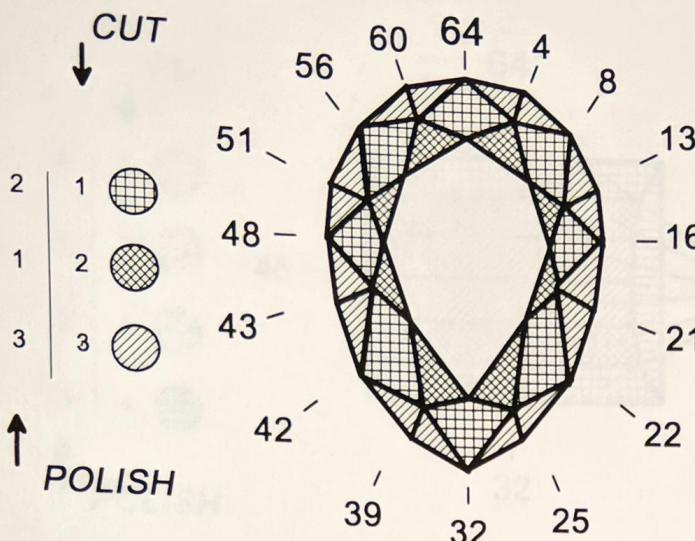
### ORDER OF POLISHING - Pavilion

See polishing order on left.

See polishing order on left.

## 64 Index - Angles for Quartz

### CROWN



### ORDER OF CUTTING - Crown

Cut and polish table in  $45^\circ$  dop holder. Table to be approximately 40% of girdle width after faceting crown.

NOTE: As in all freehand shapes, angles must not be taken too literally, especially for girdle facets.

### GRIND 1st:

- One facet at  $42^\circ$  indexing 64.
- Two facets at  $43^\circ$  indexing 8-56.
- Two facets at  $44^\circ$  indexing 16-48.
- Two facets at  $34^\circ$  indexing 22-42.
- One facet at  $27-1/2^\circ$  indexing 32.

### GRIND 2nd:

- Two facets at  $25^\circ$  indexing 4<sup>L</sup>-60<sup>R</sup>.
- Two facets at  $28^\circ$  indexing 13-51.
- Four facets at  $23^\circ$  indexing 21<sup>RR</sup>-43<sup>LL</sup> and 25<sup>R</sup>-39<sup>L</sup>.

$L = 1^\circ$  compound angle adjustment to left.

$R = 1^\circ$  compound angle adjustment to right.

$LL = 3^\circ$  compound angle adjustment to left.

$RR = 3^\circ$  compound angle adjustment to right.

### GRIND 3rd:

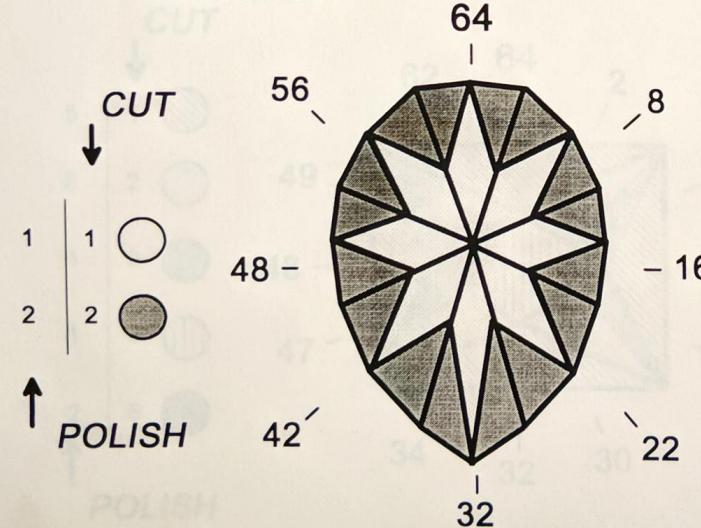
- Two facets at  $50^\circ$  indexing 2-62.
- Four facets at  $52^\circ$  indexing 6-58 and 11-53.
- Two facets at  $57^\circ$  indexing 14-50.
- Two facets at  $49^\circ$  indexing 17-47.
- Two facets at  $43^\circ$  indexing 21-43.
- Two facets at  $40^\circ$  indexing 23-41.
- Two facets at  $29^\circ$  indexing 31-33.

### ORDER OF POLISHING - Crown

See polishing order on left.

### ORDER OF CUTTING - Pavilion

### PAVILION



### GRIND 1st:

- One facet at  $41^\circ$  indexing 64.
- Two facets at  $42^\circ$  indexing 8-56.
- Two facets at  $46^\circ$  indexing 16-48.
- Two facets at  $42^\circ$  indexing 22-42.
- One facet at  $33^\circ$  indexing 32.

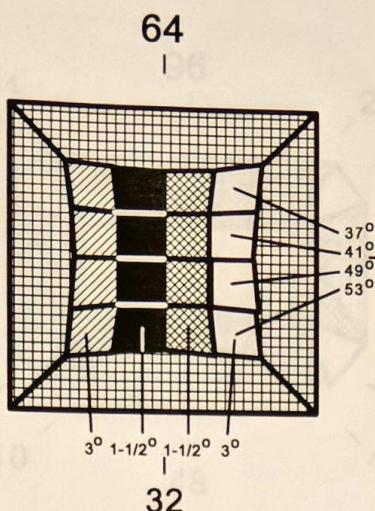
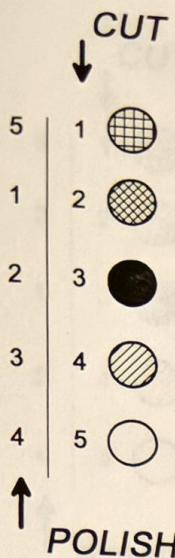
### GRIND 2nd:

- Two facets at  $43^\circ$  indexing 2-62.
- Two facets at  $44^\circ$  indexing 6-58.
- Two facets at  $47^\circ$  indexing 10-54.
- Two facets at  $48^\circ$  indexing 14-50.
- Two facets at  $49^\circ$  indexing 17-47.
- Two facets at  $48^\circ$  indexing 21-43.
- Two facets at  $42^\circ$  indexing 23-41.
- Two facets at  $36^\circ$  indexing 31-33.

See polishing order on left.



### CROWN



#### 64 Index - Angles for Quartz

#### ORDER OF CUTTING - Crown

GRIND 1st: After grinding girdle square  $90^\circ$ , grind four facets at  $42^\circ$  indexing 64-16-32-48.

Remove and insert in  $45^\circ$  dop holder, being sure that the  $42^\circ$  facet is aligned exactly with 64 index. The following facets are all cut using index 64.

GRIND 2nd: Four facets by compounding  $1-1/2^\circ$  to the right using  $37^\circ$ ,  $41^\circ$ ,  $49^\circ$  and  $53^\circ$ .

GRIND 3rd: Four facets by compounding  $1-1/2^\circ$  to the left using  $37^\circ$ ,  $41^\circ$ ,  $49^\circ$  and  $53^\circ$ .

GRIND 4th: Four facets by compounding  $3^\circ$  to the left using  $37^\circ$ ,  $41^\circ$ ,  $49^\circ$  and  $53^\circ$ .

GRIND 5th: Four facets by compounding  $3^\circ$  to the right using  $37^\circ$ ,  $41^\circ$ ,  $49^\circ$  and  $53^\circ$ .

#### ORDER OF POLISHING - Crown

See polishing order on left, using same angles and indices as with grinding.

#### ORDER OF CUTTING - Pavilion

GRIND 1st: Four facets at  $55^\circ$  indexing 64-16-32-48.

GRIND 2nd: Eight facets at  $40^\circ$  indexing 4-60, 44-52, 12-20, 28-36.

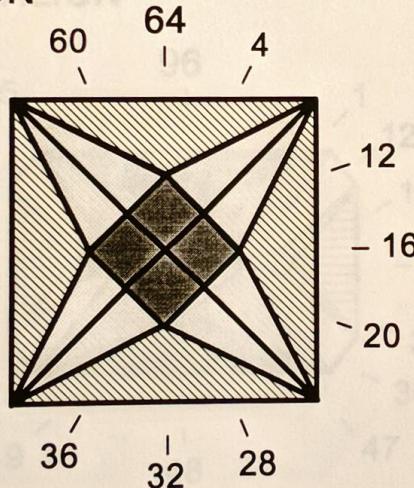
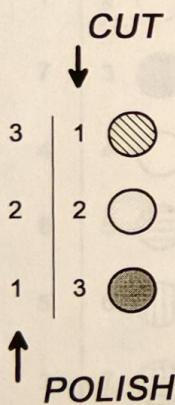
GRIND 3rd: Four facets at  $30^\circ$  indexing 64-16-32-48.

#### ORDER OF POLISHING - Pavilion

See polishing order on left, using same angles and indices as with grinding.

**NOTE: ALWAYS RETURN TO "0" SETTING ON COMPOUND ANGLE ADJUSTER WHEN COMPOUNDING IS NOT INDICATED.**

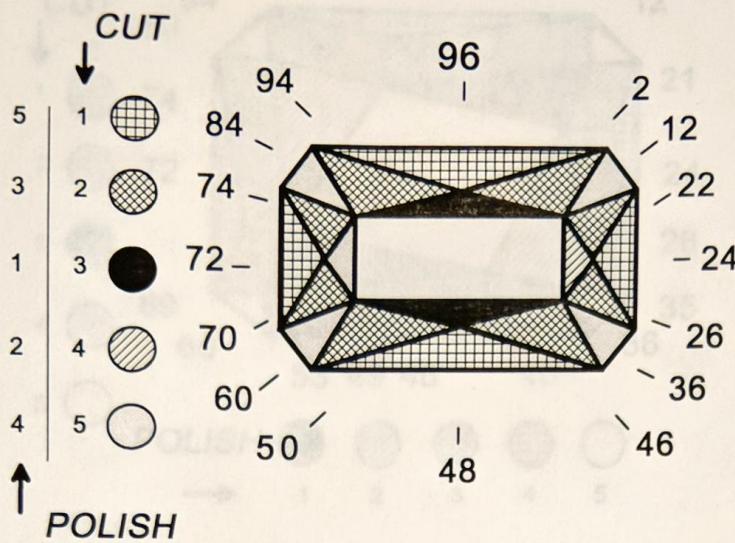
### PAVILION



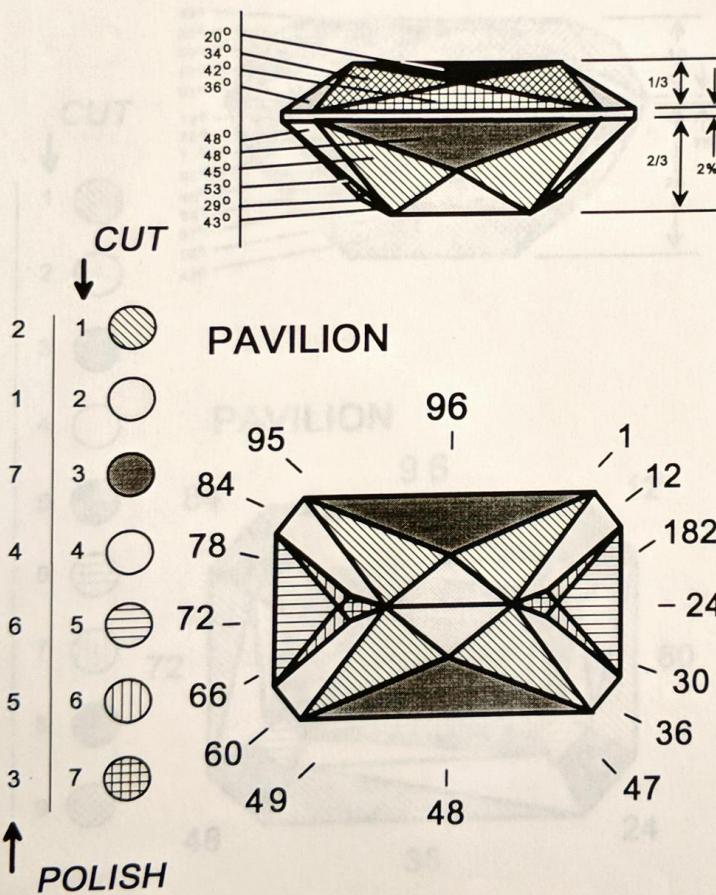
# SCISSORS CUT

No. 16

## CROWN



## SIDE VIEW



96 Index - Angles for Quartz

ORDER OF CUTTING - Crown

Cut and polish table in 45° dop holder. Table to be approximately 40% of girdle width after crown is faceted.

96 Index - Angles for Quartz

ORDER OF CUTTING - Crown

Cut and polish table in 45° dop holder. Table to be approximately 40% of girdle width after crown is faceted.

GRIND 1st: Four facets at 42° indexing 96-24-48-72.

GRIND 2nd: Eight facets at 34° indexing 2-94, 46-50, 22-26, 70-74.

GRIND 3rd: Two facets at 20° indexing 96-48.

GRIND 4th: Two facets at 23° indexing 24-72.

GRIND 5th: Four facets at 36° indexing 12-36-60-84.

ORDER OF POLISHING - Crown

See polishing order on left, using same angles and indices as with grinding.

ORDER OF CUTTING - Pavilion

GRIND 1st: Four facets at 45° indexing 1-95, 47-49.

GRIND 2nd: Two facets at 43° indexing 96-48.

GRIND 3rd: Two facets at 48° indexing 96-48.

GRIND 4th: Four facets at 48° indexing 12-36, 60-84.

GRIND 5th: Two facets at 47° indexing 24-72.

GRIND 6th: Four facets at 53° indexing 18-30, 66-78.

GRIND 7th: Two facets at 29° indexing 24-72.

ORDER OF POLISHING - Pavilion

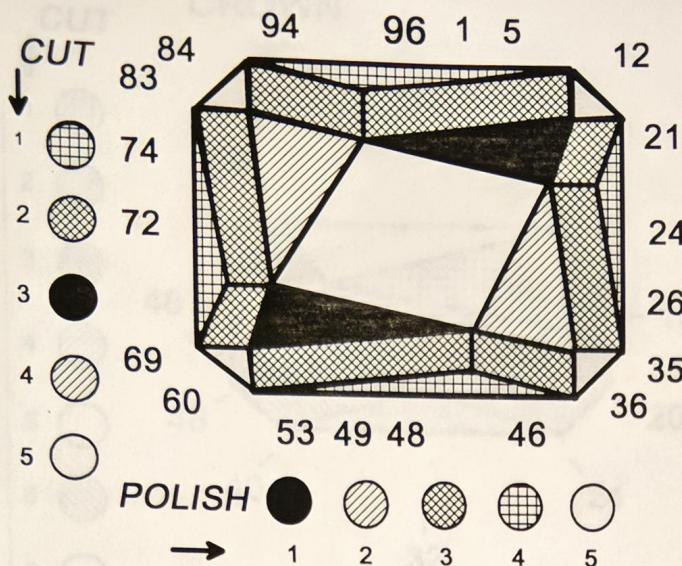
See polishing order on left, using same angles and indices as with grinding.

NOTE: ALWAYS RETURN TO 0° SITTING ON COMPOUND ANGLE ADJUSTER WHEN COMPLETING IS NOT INDICATED.

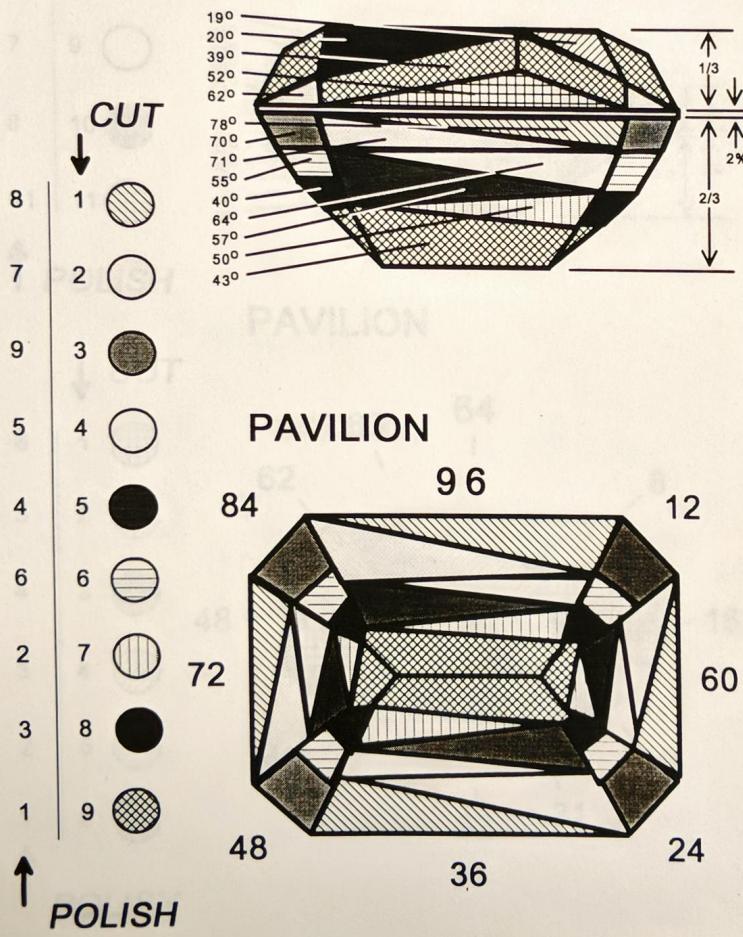
# ZIGZAG CUT

No. 17

## CROWN



## SIDE VIEW



96 Index - Angles for Quartz

### ORDER OF CUTTING - Crown

Cut and polish table in 45° dop holder. Table to be approximately 40% of girdle width after crown is faceted.

GRIND 1st: Four facets at 52° indexing 96-24-48-72.

GRIND 2nd: Eight facets at 39° indexing 1-94, 46-49, 21-26, 69-74.

GRIND 3rd: Two facets at 20° indexing 5-53.

GRIND 4th: Two facets at 19° indexing 35-83.

GRIND 5th: Four facets at 62° indexing 12-36-60-84.

### ORDER OF POLISHING - Crown

See polishing order on left, using same angles and indices as with grinding.

### ORDER OF CUTTING - Pavilion

Note: C.L. = Compound Adjust Left

GRIND 1st: Four facets at 78° indexing 96-24-48-72.

GRIND 2nd: Four facets at 71° indexing 96-24-48-72; C.L. 1-1/2°.

GRIND 3rd: Four facets at 70° indexing 12-36-60-84.

GRIND 4th: Four facets at 64° indexing 96-24-48-72.

GRIND 5th: Four facets at 57° indexing 96-24-48-72; C.L. 1-1/2°.

GRIND 6th: Four facets at 55° indexing 12-36-60-84.

GRIND 7th: Four facets at 50° indexing 96-24-48-72.

GRIND 8th: Four facets at 40° indexing 12-36-60-84.

GRIND 9th: Four facets at 43° indexing 96-24-48-72; C.L. 1-1/2°.

### ORDER OF POLISHING - Pavilion

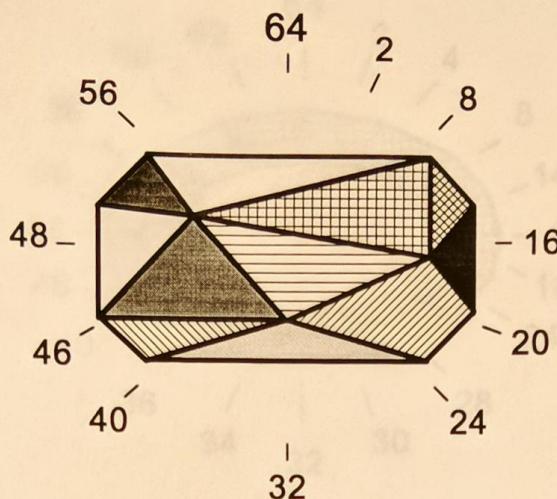
See polishing order on left, using same angles and indices as with grinding.

**NOTE: ALWAYS RETURN TO "0"**  
**SETTING ON COMPOUND ANGLE ADJUSTER WHEN COMPOUNDING IS NOT INDICATED.**

**CUT**  
↓

10 1 10  
2 2 2  
3 3 3  
4 4 4  
5 5 5  
6 6 6  
1 7 7  
9 8 8  
7 9 9  
8 10 10  
11 11 11

## CROWN



### 64 Index - Angles for Quartz

### ORDER OF CUTTING - Crown

NOTE: As in many cuts, the order of cutting is not preferred, it is only a guide.

Cut and polish table in  $45^\circ$  angle dop approximately 40% of the width of the stone at the girdle.

GRIND 1st: One facet at  $18^\circ$  indexing 2  
 GRIND 2nd: One facet at  $25^\circ$  indexing 8  
 GRIND 3rd: One facet at  $45^\circ$  indexing 16  
 GRIND 4th: One facet at  $21^\circ$  indexing 24  
 GRIND 5th: One facet at  $52^\circ$  indexing 32  
 GRIND 6th: One facet at  $21^\circ$  indexing 40  
 GRIND 7th: One facet at  $35^\circ$  indexing 64  
 GRIND 8th: One facet at  $17^\circ$  indexing 46  
 GRIND 9th: One facet at  $20^\circ$  indexing 48  
 GRIND 10th: One facet at  $26^\circ$  indexing 56

Polish before changing to  $45^\circ$  dop holder for grind 11. See polishing order on left, using same angles and indices as with grinding.

GRIND 11th: Change to  $45^\circ$  dop holder and grind one facet at  $56^\circ$  dop holder and polish table.

### ORDER OF CUTTING - Pavilion

Remove from  $45^\circ$  dop holder.

#### First Stage:

GRIND 1st: Two facets at  $43^\circ$  indexing 16-48.

GRIND 2nd: Two facets at  $54^\circ$  indexing 32-64.

GRIND 3rd: Two facets at  $39^\circ$  indexing 30-62.

#### Second Stage:

GRIND 4th: Two facets at  $42^\circ$  indexing 31-63.

GRIND 5th: Two facets at  $45^\circ$  indexing 8-40.

GRIND 6th: Two facets at  $37^\circ$  indexing 24-56.

### ORDER OF POLISHING - Pavilion

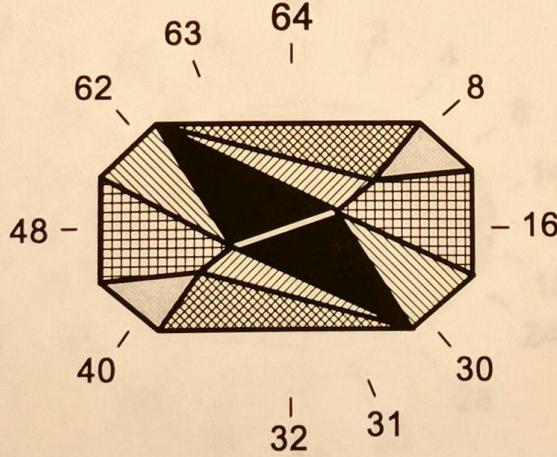
See polishing order on left, using same angles and indices as with grinding.

↑ **POLISH**

↓ **CUT**

6 1 6  
5 2 5  
4 3 4  
3 4 3  
2 5 2  
1 6 1

## PAVILION

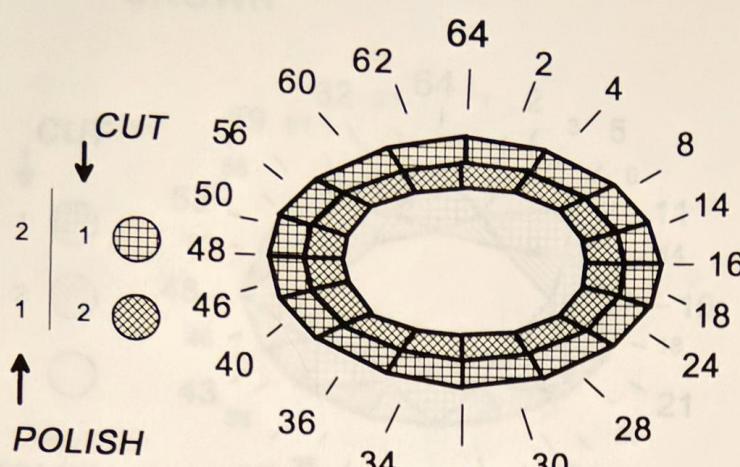


↑ **POLISH**

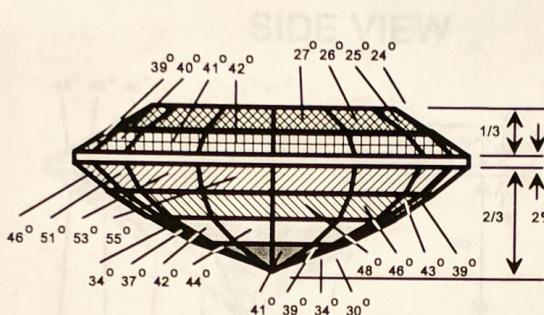
# STEP CUT OVAL

No. 19

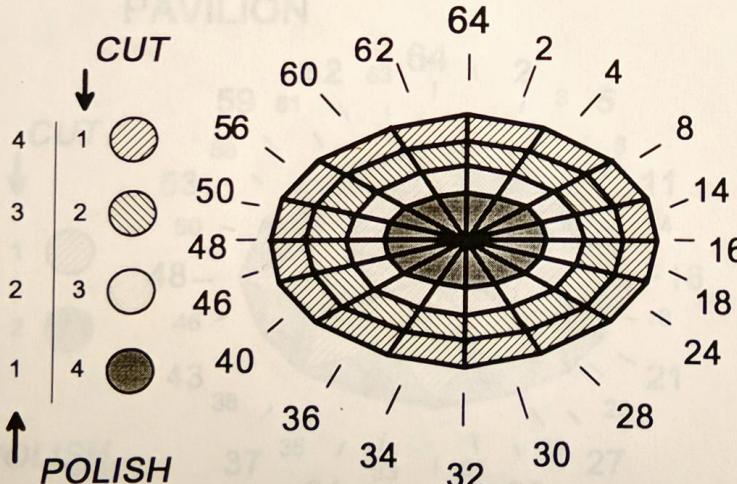
## CROWN



## SIDE VIEW



## PAVILION



## 64 Index - Angles for Quartz

### ORDER OF CUTTING - Crown

NOTE: As in many cuts that are freehand preformed, it may be necessary to change angles from those given. This will be noticed mainly at the girdle. If necessary, adjust angles to keep a level girdle.

Cut and polish table in  $45^\circ$  dop holder. Table to be approximately 40% to 50% of girdle width when crown is faceted.

### GRIND 1st:

- Four facets at  $42^\circ$  indexing 2-62, 30-34.
- Four facets at  $41^\circ$  indexing 4-60, 28-36.
- Four facets at  $40^\circ$  indexing 8-56, 24-40.
- Four facets at  $39^\circ$  indexing 14-18, 46-50.

### GRIND 2nd:

- Four facets at  $27^\circ$  indexing 2-62, 30-34.
- Four facets at  $26^\circ$  indexing 4-60, 28-36.
- Four facets at  $25^\circ$  indexing 8-56, 24-40.
- Four facets at  $24^\circ$  indexing 14-18, 46-50.

### ORDER OF POLISHING - Crown

See polishing order on left, using same angles and indices as with grinding.

### ORDER OF CUTTING - Pavilion

### GRIND 1st:

- Four facets at  $55^\circ$  indexing 2-62, 30-34.
- Four facets at  $53^\circ$  indexing 4-60, 28-36.
- Four facets at  $51^\circ$  indexing 8-56, 24-40.
- Four facets at  $46^\circ$  indexing 14-18, 46-50.

### GRIND 2nd:

- Four facets at  $48^\circ$  indexing 2-62, 30-34.
- Four facets at  $46^\circ$  indexing 4-60, 28-36.
- Four facets at  $43^\circ$  indexing 8-56, 24-40.
- Four facets at  $39^\circ$  indexing 14-18, 46-50.

### GRIND 3rd:

- Four facets at  $44^\circ$  indexing 2-62, 30-34.
- Four facets at  $42^\circ$  indexing 4-60, 28-36.
- Four facets at  $37^\circ$  indexing 8-56, 24-40.
- Four facets at  $34^\circ$  indexing 14-18, 46-50.

### GRIND 4th:

- Four facets at  $41^\circ$  indexing 2-62, 30-34.
- Four facets at  $39^\circ$  indexing 4-60, 28-36.
- Four facets at  $34^\circ$  indexing 8-56, 24-40.
- Four facets at  $30^\circ$  indexing 14-18, 46-50.

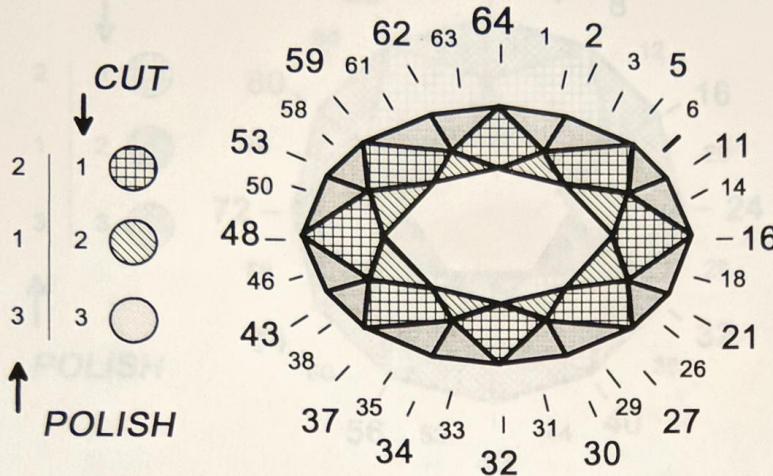
### ORDER OF POLISHING - Pavilion

See polishing order on left, using same angles and indices as with grinding.

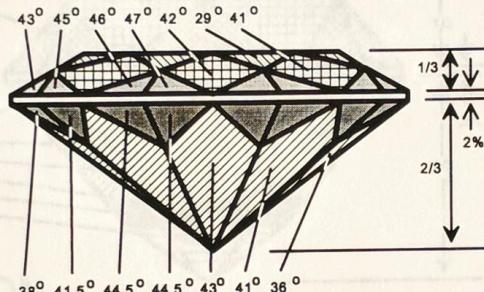
# BRILLIANT OVAL CUT

No. 20

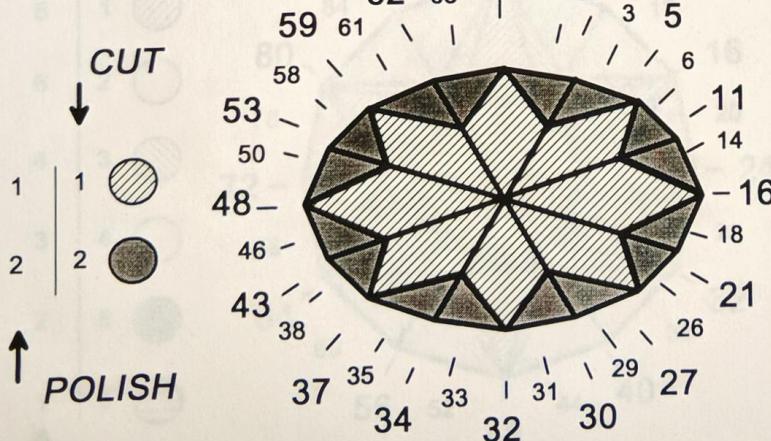
## CROWN



## SIDE VIEW



## PAVILION



## 64 Index - Angles for Quartz

### ORDER OF CUTTING - Crown

Cut and polish table in  $45^\circ$  angle dop approximately 40% of the width of the stone at the girdle.

NOTE: As in all other freehand shapes, the angles for the girdle facets will vary somewhat with any deviation from the shape of the example. Compensate for this by raising or lowering angle as needed to keep a straight girdle.

### GRIND 1st:

- Two facets at  $42^\circ$  indexing 64-32.
- Four facets at  $41^\circ$  indexing 5-27, 37-59.
- Two facets at  $36^\circ$  indexing 16-48.

### GRIND 2nd:

- Four facets at  $29^\circ$  indexing 2-62, 30-34.
- Four facets at  $20^\circ$  indexing 11-53, 21-43.

### GRIND 3rd:

- Four facets at  $47^\circ$  indexing 1-63, 31-33.
- Four facets at  $46^\circ$  indexing 3-61, 29-35.
- Four facets at  $45^\circ$  indexing 6-58, 26-38.
- Four facets at  $43^\circ$  indexing 14-50, 18-46.

### ORDER OF POLISHING - Crown

See polishing order on left, using same angles and indices as with grinding.

### ORDER OF CUTTING - Pavilion

### GRIND 1st:

- Two facets at  $43^\circ$  indexing 32-64.
- Four facets at  $41^\circ$  indexing 5-27, 37-59.
- Two facets at  $36^\circ$  indexing 16-48.

### GRIND 2nd:

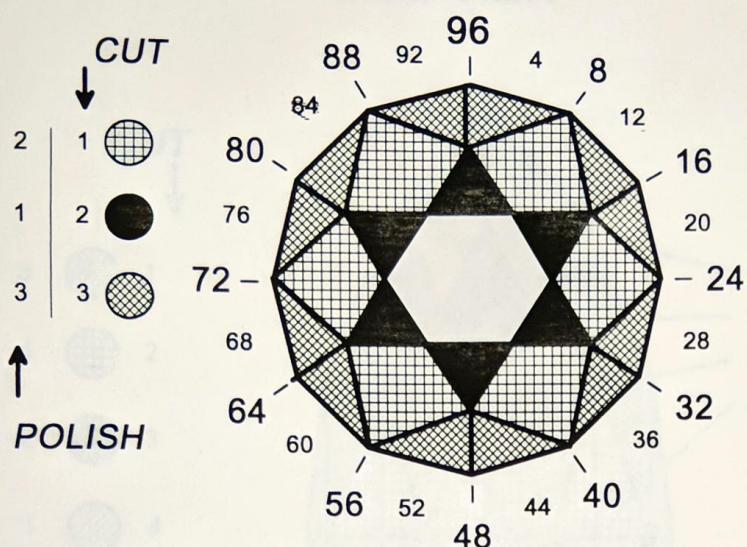
- Eight facets at  $44\frac{1}{2}^\circ$  indexing 1-63, 31-33, 3-61, 29-35.
- Four facets at  $41\frac{1}{2}^\circ$  indexing 6-58, 26-38
- Four facets at  $38^\circ$  indexing 14-50, 18-46.

### ORDER OF POLISHING - Pavilion

See polishing order on left, using same angles and indices as with grinding.

## CAIRO CUT

## CROWN



96 Index - Angles for Quartz

## ORDER OF CUTTING - Crown

Cut and polish table in  $45^\circ$  angle dop approximately 40% of the width of the stone at the girdle.

GRIND 1st: Six facets at  $42^\circ$  indexing 8-24-40-56-72-88.

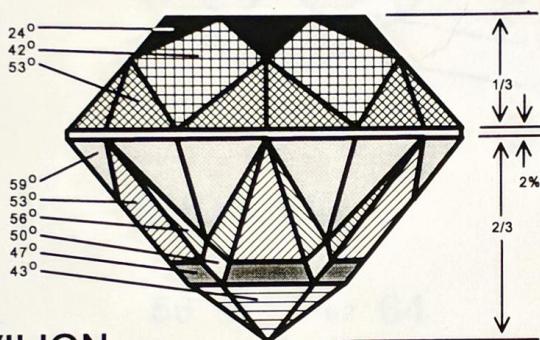
GRIND 2nd: Six facets at  $24^\circ$  indexing 16-32-48-64-80-96.

GRIND 3rd: Twelve facets at  $53^\circ$  indexing 4-12-20-28-36-44-52-60-68-76-84-92.

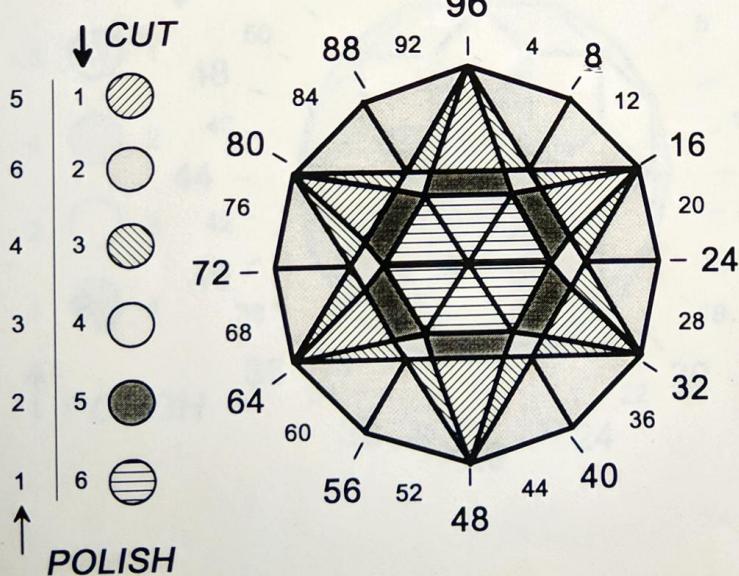
## ORDER OF POLISHING - Crown

See polishing order on left, using same angles and indices as with grinding.

## SIDE VIEW



## PAVILION



GRIND 1st: Six facets at  $53^\circ$  indexing 16-32-48-64-80-96.

GRIND 2nd: Twelve facets at  $59^\circ$  indexing 4-12-20-28-36-44-52-60-68-76-84-92.

GRIND 3rd: Twelve facets at  $56^\circ$  indexing 13-19, 29-35, 45-51, 61-67, 77-83, 93-3.

GRIND 4th: Six facets at  $50^\circ$  indexing 8-24-40-56-72-88.

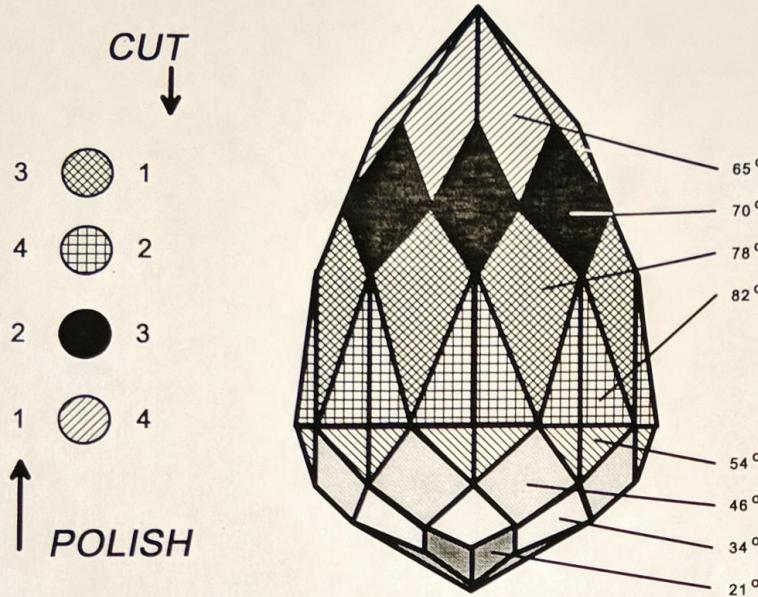
GRIND 5th: Six facets at  $47^\circ$  indexing 16-32-48-64-80-96.

GRIND 6th: Six facets at  $43^\circ$  indexing 16-32-48-64-80-96.

## ORDER OF POLISHING - Pavilion

See polishing order on left, using same angles and indices as with grinding.

### SIDE VIEW



#### 64 Index - Angles for Quartz

NOTE: Top of stone should be cut first.

#### ORDER OF CUTTING - Top

GRIND 1st: Eight facets at  $78^\circ$  indexing 64-8-16-24-32-40-48-56.

GRIND 2nd: Sixteen facets at  $82^\circ$  indexing 2-6-10-14-18-22-26-30-34-38-42-46-50-54-58-62.

GRIND 3rd: Eight facets at  $70^\circ$  indexing 4-12-20-28-36-44-52-60.

GRIND 4th: Eight facets at  $65^\circ$  indexing 64-8-16-etc.

#### ORDER OF POLISHING - Top

See polishing order on left, using same angles and indices as with grinding.

OPTIONAL: Girdle facets may be ground first, or last, at  $90^\circ$  using Indices of 2-6-10-etc. Polishing should be completed at this setting.

#### ORDER OF CUTTING - Bottom

GRIND 1st: Eight facets at  $46^\circ$  indexing 64-8-16-etc.

GRIND 2nd: Sixteen facets at  $54^\circ$  indexing 2-6-10-etc.

GRIND 3rd: Eight facets at  $34^\circ$  indexing 4-12-20-etc.

GRIND 4th: Eight facets at  $21^\circ$  indexing 64-8-16-etc.

#### ORDER OF POLISHING - Bottom

See polishing order on left, using same angles and indices as with grinding.

